Summaries of Articles

Clinical Investigations

Pulmonary Autograft (Ross) Operation for Aortic Valve Disease and Pericardial Collar Technique

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Purpose: Technical demands of the Ross operation and two valves at risk have delayed acceptance. Its increasing popularity in 90's was due to excellent long term results. The results of 18 consecutive patients who underwent Ross procedure and pericardial collar technique for right ventricular outflow tract reconstruction (RVOT) was documented in this article.

Materials and Methods: Patient's ages ranged from 9 to 37 years (mean $16,2 \pm 7,1$). Three of them had prior open heart operation. Total root replacement technique was used in all patients. Aortoplasty were done in two patients with aortic root dilatation. Ross / Konno procedure was performed in 3 patients with subaortic stenosis and/or aortic root hypoplasia. We used homografts in 6 patients and stentless bioprosthesis in 12 patients for RVOT reconstructions. A special pericardial collar technique was employed to control some persistent bleeding from septal dissection site and to avoid damage to first septal artery. Additional mitral valve replacement was performed in one patient.

Results: One patient died in early postoperative period due to low cardiac output. Complete atrioventricular block was occurred in one patient and permanent pacemaker implantation was performed. A patient who undergone Ross and MVR, was reoperated owing to endocarditis. Other patients had uneventful postoperative course. Mean follow-up period was $15,2 \pm 9$ months (1 to 32 months) and all patients were well and in NYHA class I or II. Routine postoperative echocardiographic examinations showed normal aortic valve function or trivial aortic insufficiency (AI) in all but one patient who had mild to moderate AI.

Conclusion: The Ross operation could be an alternative procedure for the prosthetic aortic valve replacement in selected patients such as children, young adults and females. We think that pericardial collar technique is a useful modification and stentless bioprosthesis may be a good alternative to homografts for RVOT reconstruction.

Key words: Ross procedure, pulmonary autograft, aortic valve replacement.

Effects of Thrombolytic Therapy on Distal Coronary Microvasculature: A Study Based on Coronary Pressure Measurements

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The most important determinant of the success of thrombolytic therapy (TT) is the amount of salvaged myocardial mass rather than accomplished vessel patency. It has already been shown that the lack of tissue perfusion in the face of restored angiographic flow may occur after thrombolysis in some patients. One of the most important prognostic determinants of myocardial viability and function after thrombolysis is the degree of destruction of distal microvasculature (DMV). Intracoronary pressure measurement is a new technique to provide quantiative and functional information about the collaterals and DMV. Quantitation and assesment of function of DMV are possible by determination of coronary wedge pressure (CWP), collateral flow index (CFI) and the responsiveness of DMV to hyperemic stimuli (ΔP). In this study we investigated the effects of TT on DMV by quantitative measuring of the perfusion pressure, function and patency of DMV in patients with myocardial infarction (MI).

Material and method. Thirthy patients after AMI with more than 70% stenosis and thrombolysis in myocardial infarction (TIMI) grade II flow in infarct related artery who underwent PTCA and/or stent implantation procedure within 10 days of MI were included in this study. Fifteen of them had received TT within 6 hours of their symptom beginning. After angiography fiberoptic pressure monitoring guide-

wire (Pressure Wire - Radi) was advanced and positioned distal to stenosis. Proximal and distal pressures were recorded simultaneously under basal and hyperemic conditions. During total occlusion with balloon, distal pressure was recorded as CWP. CFI was determined by the ratio of simultaneously measured CWP to aortic pressure. Capability to increase pressure gradient (achievable ΔP) or with an other word, responsiveness of DMV was assessed by substraction of resting pressure gradient from provoked (hyperemic) pressure gradient across the lesion.

Results. Mean CWP, CFI and ΔP values were 27.7 ± 9.6 mmHg, 0.29 ± 0.09 and 22.3 ± 7.4 mmHg respectively in the group who had received TT (group I) and 18.2 ± 6.2 mmHg, 0.19 ± 0.07, 12.2 ± 6.8 mmHg in the group without TT (group II). Mean values of CWP, CFI and ΔP were significantly higher in the group I. The differences of these mean values were statistically significant ($p<0.01$, $p<0.01$, $p<0.03$, respectively)

We concluded that, thrombolytic therapy has a protective effect on DMV and even if some degree of recanalization occurs spontaneously, the destruction degree of DMV is greater in patients who did not receive thrombolytic therapy. Evaluation of the effects and efficacy of TT and designation of the subsequent treatment strategies may be possible by quantitative determination of the patency of DMV.

Key words: coronary pressure, microcirculation, thrombolytic therapy

Levels of C-Reactive Protein, Interleukin-6 and Activated T Lymphocyte in Patients with Unstable Angina Pectoris and Their Relation with Ischemia

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This study aimed to evaluate and compare C-reactive protein (CRP), interleukin-6 (IL-6) and activated T lymphocyte (ATL) levels of 14 patients with unstable angina pectoris (UAP) of Class IIIB (13 male, mean age 62±8 years) within the first 24 h after chest pain (early period), within 3-5 days after the control of ischemic pain (intermediate period) and within 14-21 days following the revascularization procedure (late period). CRP levels were 3.53±2.83 mg/dl, 2.67±3.28 mg/dl and 1.22±1.08 mg/dl in the early, intermediate and late periods, respectively. The difference between the early and intermediate, the early and late, and the intermediate and late periods were significant ($p<0.04$, $p<0.001$ and $p=0.02$, respectively). IL-6 levels in the early and intermediate periods were found to be similarly increased (17.43±11.73 and 17.40±15.59 pg/ml, respectively), but it decreased to 12.05±7.13 pg/ml in the late period. The difference only between the early and late periods was significant ($p<0.05$). ATL (CD3/HLA DR+) levels were 8.47±5.42%, 9.22±5.48% and 10.18±4.69% in the early, intermediate and late period, respectively. There was no difference between the periods regarding ATL levels ($p>0.05$). There was a good relation between the CRP and IL-6 levels of intermediate period ($r=0.73$, $p<0.001$). Ischemia was controlled with optimal medical therapy in 8 patients (Group I) whereas medical therapy failed in 6 patients (Group II) in whom interventional treatment was preferred. CRP levels of Group I and Group II were 2.45±1.73 mg/dl and 4.98±3.49 mg/dl ($p<0.05$), respectively in the early period, whereas the levels were 0.90±0.65 mg/dl and 5.05±3.94 mg/dl ($p<0.006$) in the intermediate period and finally 0.78±0.46 mg/dl and 1.80(1.43 mg/dl ($p<0.04$) in the late period. There was significant differences in IL-6 levels of Group I and Group II in both the early and intermediate periods (12.31±7.72 pg/ml vs 24.26±13.29 pg/ml, $p<0.03$; and 10.76±5.84 pg/ml vs 26.25±20.50 pg/ml, $p=0.03$, respectively). However, no significant difference was found between groups in the late period. ATL levels were comparable between groups in the early, intermediate and late periods. As a conclusion, these data suggested that; CRP, IL-6 and ATL levels in patients with UAP were increased and there was an association between the increase in CRP and IL-6 levels and the severity of ischemia.

Key words: Unstable angina pectoris, C-reactive protein, interleukin-6, T-lymphocyte

Fourier Transformation Analysis of Atrial Fibrillation Intervals Following Ibutilide and Procainamide to Predict Successful Cardioversion

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The frequency and the degree of fractionation of intraatrial recordings during atrial fibrillation (AF) have a correlation with the wavelengths and the size of the reentry pathways. We hypothesized that spectral analysis might help to explain the mechanism of antiarrhythmic drug-induced termination of AF. The frequency spectrum of monophasic action potentials recorded in the right atrium was analysed using Fast Fourier Transformation (FFT). The maximal, minimal, first 5 peak frequencies and the width of frequency distribution within each 5 sec segments were calculated before and after placebo (group C, n=7), ibutilide 1.6±0.4 mg (group I, n=10) or procainamide 1240±221 mg (group P, n=10) infusion in 24 patients with AF. Age (66±9, 68±6 and 64±7), LA size (40±8, 44±5 and 46±4 mm) and LV EF (44±11, 43±7 and 40±11) were similar in group I, P and C, respectively (p>0.05). Ibutilide and procainamide decreased the peak AF frequency from 6.2±0.6 and 6.5±1.1 Hz to 4.3±0.3 and 4.5±0.8 Hz, respectively (p<0.001), whereas placebo had no effect on FFT. Ibutilide decreased the frequency of the peaks significantly within 30 sec after each dose. In 3 patients in group I, AF terminated. Cardioverted patients tented to have a lower frequency at baseline than nonconverters (5.7±.3 vs. 6.4±.6 Hz). Ibutilide decreased the frequency of AF to 3.5±0.1 Hz before cardioversion.

Conclusions: Fourier transformation analysis of AF electrograms is a useful method for evaluation of the effect of drugs on atrial tissue. Ibutilide may decrease the frequency of AF to a critical level before cardioversion.

Key words: Atrial fibrillation, monophasic action potential, Fast Fourier transformation

In Vitro Response of Platelet Aggregation Induced by Agonists in Chronic Smoking Coronary Artery Patients

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Aim: Controversial results for the effect of chronic smoking on platelet aggregation response were found in different studies. In this study, the effect of chronic smoking on in-vitro platelet aggregation induced by various agonists were investigated in coronary artery disease patients.

Methods and results: 121 patients (Group 1: 53 chronic smokers and Group II: 68 non-smokers) who had clinical and laboratuary data of stable angina pectoris and controlled unstable angina pectoris were included in the study. Platelet rich plasm of the patients was obtained before coronary angiography and in vitro treated seperately with adenosine diphosphate (10 µmol/L), collagen (0.6 µgm/ml) and epinephrine (20 µmol/L). Activation and duration of platelet aggregation slopes were measured and calculated for each agonist by Turbodimetric Method of Bohr. Activation ratios and duration of ADP, collagen, and epineprine induced in-vitro platelet aggregation response were significantly more in Group I (p<0.05, <0.001, <0.0001 for ratio of activation and p<0.05, p<0.05, p <0.001 for duration of activation respectively).

Conclusion: Clinical studies investigating effects of more potent antiaggregant drugs added to aspirin are needed in chronic smoking coronary artery disease patients.

Key words: Smoking, coronary artery disease, in vitro platelet aggregation.

Prevalence, Relationship to HDL and Impact on Coronary Events of Smoking in Turkish Adults

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Prevalence of smoking habit was assessed in the 10th year of follow-up survey of the Turkish Adult Risk Factor Study. In this representative sample of adults aged 30 or over, a total of 2455 men and women were evaluated for trends. In the period 1990-2000, when adjusted for age, a reduction by 20% in men, and an increase by 14% in women was noted in the category of smoking. By comparison, the proportion of current smokers declined by 11% in men and rose by 1% in women. The leel of HDL-cholesterol among smoking adults were lower by 2.5 mg/dl than

nonsmokers, despite the fact that smokers were younger and slimmer. It was considered that, after adjustment for age and waist circumference, smoking might induce an HDL-variability by over 10%. Among participants free of coronary heart disease patients at baseline in 1990, in a prospective analysis by logictic regression of 9 baseline variables for coronary mortality, smoking proved to be an independent determinant of borderline significance among men, exhibiting a relative risk of 1.52.

Key words: Coronary mortality, HDL-cholesterol, smoking, Turkish Adult Risk Factor Study

Pulmonary Artery Pressure Measurement in Patients with Rheumatic Mitral Valve Disease by Using Color M-mode Doppler Echocardiography

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Non-invasive estimation of pulmonary artery pressure (PAP) by echocardiography is an important tool in routine clinical practice. The aim of the study was to investigate the application of color M-mode Doppler echocardiography in measurement of pulmonary artery pressure as a complementary method.

We studied 68 patients (38 F, 30 M) who have normal right ventricular systolic function with a mean age of 36.2±15.8 years. Of 68 patients, 44 were in sinus rhythm and rest of them in atrial fibrillation. During echocardiographic examination color baseline shift was adjusted to produce color aliasing and M-mode cursor was adjusted at the tips of the pulmonary valves to be as parallel the pulmonary flow as possible. After that, color M-mode Doppler (flow propagation velocity (FPV) cm/sec) was measured as the slope of the aliasing velocity of the pulmonary flow. FPV measurement was successfully performed 59 of 68 (%87) patients from pulmonar artery. Pulmonary artery pressure were measured using tricuspid regurgitation jet (TRJ), and pulmonary flow acceleration time (PAT) methods by echocardiography. Cardiac catheterization (CATH) were also performed to all patients for PAP measurement.

As a result, mean PAP were obtain 33.0±14.2 mmHg, 37.2±12.7mmHg, and 32.9±16.2 mmHg by FPV, PAT and CATH methods, respectively. Also reasonable coefficients were obtained between FPV and TRJ, PAT, CATH methods (r=-0.71, p<0.0001 r=0.79, p<0.0001 and r=-0.85, p<0.0001; respectively). In the measurement of PAP, the highest negative correlation were found between FPV and CAT results that can be expressed by the linear regression equation (y=-0.41x+58.3, r=-0.85, p<0.0001, SEE=6.5mmHg).

As a conclusion, our data confirmed that application of color-M-mode Doppler (FPV) to determine pulmonary artery pressure was reliable and feasible approach in comparison with well accepted methods.

Key words: Pulmonary arterial pressure, color M-mode echocardiography.

Clinical Characteristics and Prognostic Importance of Female Gender in Unstable Angina Pectoris

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It is well known that women (F) with acute myocardial infarction (AMI) have a relatively higher risk for inhospital complications and mortality than men (M). But there are few prospective studies comparing the clinical characteristics and prognosis of women and men with unstable angina pectoris (UAP). To evaluate the impact of female gender on clinical characteristics and prognosis of patients with UAP data (demographic and basic clinical characteristics, in hospital and 30-day prognosis (mortality, nonfatal MI, recurrent / refractory ischemia and revascularization procedures)) of 81 consecutive UAP patients admitted to the emergency deparment of a tertiary center were evaluated prospectively. 29,6% (n=24) of the patient population were female and avarage age was 58.2 in both groups. Smoking (37.5% vs 64.9%, p=0.03), hypercholesterolaemia (20.8% vs 47.4%; p=0.05) and prior revascularization (12.5% vs 43.9%, p=0,009) were less common among women, prior MI was not different between the groups. Hospital admission rates after risk stratification was similar (F:75% vs M:78.9%). In hospitilized patients in-

hospital ischemia (F:44.4% vs M:31.7%), coronary angiography (F:70.8% vs M:86%), multivessel disease (F:52.9% vs M:55.1%) and in-hospital revascularization rates (F:27.8% vs M:24.4%) showed no difference among the groups. Women had less non-Q wave MI (5.6% vs 15.6%), but the difference was not statistically significant. There were no deaths during the in-hospital phase. 30-day follow-up rates of both groups were similar (F:70.9% vs M:87.8%), as well as ischemia (F:41.2% vs M:26%) and revascularization rates (F:11.8% vs M:8%). There were no MI or death among groups. In conclusions, in our unstable angina population, women had lower rates of smoking, hyperlipidemia and previous revascularization rates compared to men and in-hospital non-Q MI rates were lower in this group. Women in our patient population had a better prognosis regarding coronary morbidy compared with MI studies. This result can be related to the younger and better risk profile of the study populations as well as to different pathophysiologic and anatomic characteristics in UAP.

Key words: Unstable angina pectoris, gender, prognosis

Turkish International Publications in Cardiovascular Medicine Numerically Stabilized in Year 2000

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Publications in cardiovascular medicine originating from Turkey were identified from the data of Science Citation Expanded in the Web of Science with the purpose of assessing the progress of the output. Meeting abstracts and letters to the editor, as well as journals only covered by the on-line version were excluded. A weighted credit system was utilized for articles published jointly with a nonmedical or noncardiovascular institution.

Publications in cardiovascular medicine consisted of 68 articles with full text, of which 8 involved pediatric cardiology and 11 cardiovascular surgery.

In addition 42 publications appeared in journals included in SCI Expanded only. Cardiologic publications from Turkey made up this year again an estimated world share of 5.3 per mille leading to the inference of a stabilization as compared to the performance in the 1990s.

Key words: Turkish cardiovascular publications

Thoracic and Thoracoabdominal Aneurysm in Sisters with Marfan Syndrome: A Case Report

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In patients with a family history of Marfan syndrome, the incidence of recurrent aneurysm and dissection that involves the previous anastomotic site and /or more distal segments are higher than normal population. In our institution, during the last 6 years, 10 of 42 patients who underwent a surgical intervention because of aortic dissection and /or thoracoabdominal aneurysm had the diagnosis of Marfan syndrome. Two of them were sisters. The first patient previously operated due to infrarenal aneurysm was referred to our institution with the diagnosis of Crawford type IV thoracoabdominal aneurysm. The operation was performed by simple clamp and using autotransfusion techniques. The second patient with chronic type III dissecting aneurysm underwent to thoracic aorta replacement. Operation was conducted under partial femoro-femoral cardiopulmonary by-pass for distal perfusion. During the early and late follow-up, we did not notice any neurological deficit or visceral organ malperfusion. The first patient was presented with a sacculer aortic aneurysm 18 months after first operation. However, we lost the patient perioperatively because of the rupture.We believe that the high risk of recurrent aneurysm in this population necessitates close follow-up after the operation.

Key words: Marfan syndrome, familial thoracic aneurysm